

Listing of Claims:

1-18 (Canceled)

1 ~~19~~ (Currently Amended) An automatic device for producing a plurality of reaction samples in liquid medium, wherein said device comprises:

a first supply plate, comprising N receptacles each intended to contain a first constituent, wherein said plate is a removable microplate;

a second supply plate, comprising M receptacles each intended to contain a second constituent, wherein said plate is a removable microplate;

a removable plate for samples, comprising a plurality of cavities arranged in the form of an array comprising at least N rows and at least M columns, wherein each cavity holding is configured to hold a volume on the order of ten to thirty nanoliters at least ten nanoliters, wherein said cavities are intended to contain a mixture of constituents originating from said first and second supply plates;

a piezoelectric micropipette, wherein said micropipette is able to sample a predetermined amount of said first and/or second constituents and to deliver a volume on the order of a nanoliter, wherein said piezoelectric micropipette is capable of delivering at least one drop of said first and/or second constituents into each cavity of said removable plate for samples;

a means for displacing said piezoelectric micropipette along at least two perpendicular axes Y, Z so that said piezoelectric micropipette can sample a predetermined amount of said first and/or second constituents from each filled receptacle of said first and second supply plates; and

a means for relatively displacing the piezoelectric micropipette relative to and the removable plate for samples.

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35 100

2 20. (Currently Amended) The device of claim 19, further comprising a stepper or DC motor, wherein said stepper or DC motor advances is configured to advance said piezoelectric micropipette and relative to said removable plate for samples.

3 21. (Previously Presented) The device according to claim 19, wherein said piezoelectric micropipette is able to count the number of drops said micropipette delivers and to deliver a predetermined number of drops.

4 22. (Previously Presented) The device according to claim 19, further comprising a refrigeration tray supporting said removable plate for samples.

5 23. (Currently Amended) The device according to claim 19, further comprising at least one optical system, wherein said optical system ~~uses the emission/reception of a laser carpet~~, is in line with said removable plate for samples, and is configured to count the number of drops delivered with each discharge of said piezoelectric micropipette, and to transmit this number to a coordination device, and wherein the coordination device is configured to send so that an order for a second pass in line with a cavity or several cavities ~~is sent~~ to the micropipette when a discrepancy is noted between the counted number of drops discharged and the designated theoretical number of drops.

6 24. (Currently Amended) The device according to claim 19, further comprising a second piezoelectric micropipette, wherein said second piezoelectric micropipette is identical to said piezoelectric micropipette and both said piezoelectric micropipette and said second piezoelectric micropipette are configured to operate alternately.

7 25. (Currently Amended) The device according to claim 19, further comprising an automatic washing station for said piezoelectric micropipette, wherein each washing station decontaminates is configured to decontaminate said piezoelectric micropipette.

8 26. (Previously Presented) The device according to claim 25, wherein said washing station comprises a means for filling said piezoelectric micropipette with a water-immiscible carrier liquid and an optical means for verifying the proper filling of said piezoelectric micropipette.

9 27. (Previously Presented) The device according to claim 19, wherein said piezoelectric micropipette comprises two conducting parts separated by a nonconducting material, which are linked at the upper part to an electrical system, so that when the orifice of the piezoelectric micropipette comes into contact with a constituent of a receptacle of the first or of the second supply plate, it brings about closure of the electrical circuit formed by the two electrically linked conducting parts of said piezoelectric micropipette, which commands the stoppage of the vertical displacement of said piezoelectric micropipette.

10 28. (Previously Presented) The device according to claim 19, further comprising an automatic means for fitting a seal on said sample plate.

11 29. (Currently Amended) The device according to claim 19, further comprising an automatic ~~means with suckers for removing and fitting~~ system configured to remove and fit a cover on said first and second supply plates as well as on a filled sample plate.

12 30. (Currently Amended) The device according to claim 19, wherein said first and second supply plates are disposed along the X axis on either side of said removable plate for samples, wherein said plates are configured to be carried together by a movable bench along said X axis.

13 31. (Previously Presented) The device according to claim 19, wherein the arrays of said cavities of said removable plate for samples is a square array with N equal to M.

14 32. (Previously Presented) The device according to claim 21, wherein said arrays have a width of around 5 cm, and comprise 100 columns and 100 rows with cavities of width (d_1) equal to around 400 μm and of depth equal to around 400-500 μm , two successive cavities in one row being spaced apart by a distance (d_2) equal to around 150 μm .

15 33. (Previously Presented) The device according to claim 19, further comprising vessels, wherein said vessels comprise different constituents disposed in proximity to said removable plate for samples.

18 ~~24.~~ (Currently Amended) An automatic device for producing a plurality of reaction samples in liquid medium, wherein said device comprises:

a first supply plate, comprising N receptacles each intended to contain a first constituent, wherein said plate is a removable microplate;

a second supply plate, comprising M receptacles each intended to contain a second constituent, wherein said plate is a removable microplate;

a removable plate for samples, comprising a plurality of cavities arranged in the form of an array comprising at least N rows and at least M columns, wherein each cavity holding is configured to hold a volume on the order of ten to thirty nanoliters at least ten nanoliters, wherein said cavities are intended to contain a mixture of constituents originating from said first and second supply plates;

a piezoelectric micropipette, wherein said micropipette is able to sample a predetermined amount of said first and/or second constituents and to deliver a volume on the order of a nanoliter, wherein said piezoelectric micropipette is capable of delivering at least one drop of said first and/or second constituents into each cavity of said removable plate for samples;

a means for displacing said piezoelectric micropipette along at least two perpendicular axes Y, Z so that said piezoelectric micropipette can sample a predetermined amount of said first and/or second constituents from each filled receptacle of said first and second supply plates;

a means for displacing the piezoelectric micropipette relative to the removable plate for samples; and

a refrigeration tray supporting said removable plate for samples.

~~19~~ 35. (Currently Amended) An automatic device for producing a plurality of reaction samples in liquid medium, wherein said device comprises:

a first supply plate, comprising N receptacles each intended to contain a first constituent, wherein said plate is a removable microplate;

a second supply plate, comprising M receptacles each intended to contain a second constituent, wherein said plate is a removable microplate;

a removable plate for samples, comprising a plurality of cavities arranged in the form of an array comprising at least N rows and at least M columns, wherein each cavity holding is configured to hold a volume on the order of ten to thirty nanoliters at least ten nanoliters, wherein said cavities are intended to contain a mixture of constituents originating from said first and second supply plates;

a piezoelectric micropipette, wherein said micropipette is able to sample a predetermined amount of said first and/or second constituents and to deliver a volume on the order of a nanoliter, wherein said piezoelectric micropipette is capable of delivering at least one drop of said first and/or second constituents into each cavity of said removable plate for samples;

a means for displacing said piezoelectric micropipette along at least two perpendicular axes Y, Z so that said piezoelectric micropipette can sample a predetermined amount of said first and/or second constituents from each filled receptacle of said first and second supply plates;

a means for displacing the piezoelectric micropipette relative to the removable plate for samples; and

at least one optical system, wherein said optical system ~~uses the emission/reception of a laser earpet, is~~ in line with said sample plate and is configured to count the number of drops delivered with each discharge of said piezoelectric micropipette, and to transmit this number to a coordination device, and wherein the coordination device is configured to send so that an

order for a second pass in line with a cavity or several cavities is sent to the micropipette when a discrepancy is noted between the counted number of drops discharged and the designated theoretical number of drops.

20 ~~36.~~ (Currently Amended) An automatic device for producing a plurality of reaction samples in liquid medium, wherein said device comprises:

a first supply plate, comprising N receptacles each intended to contain a first constituent, wherein said plate is a removable microplate;

a second supply plate, comprising M receptacles each intended to contain a second constituent, wherein said plate is a removable microplate;

a removable plate for samples, comprising a plurality of cavities arranged in the form of an array comprising at least N rows and at least M columns, wherein each cavity holding is configured to hold a volume on the order of ten to thirty nanoliters at least ten nanoliters, wherein said cavities are intended to contain a mixture of constituents originating from said first and second supply plates;

a piezoelectric micropipette, wherein said micropipette is able to sample a predetermined amount of said first and/or second constituents and to deliver a volume on the order of a nanoliter, wherein said piezoelectric micropipette is capable of delivering at least one drop of said first and/or second constituents into each cavity of said removable plate for samples;

a means for displacing said piezoelectric micropipette along at least two perpendicular axes Y, Z so that said piezoelectric micropipette can sample a predetermined amount of said first and/or second constituents from each filled receptacle of said first and second supply plates; and

a means for displacing the piezoelectric micropipette relative to the removable plate for samples; and

an automatic washing station for each piezoelectric micropipette, wherein said washing station ~~decontaminates~~ is configured to decontaminate said piezoelectric micropipette.

16 37. (New) The device of claim ~~19~~, further comprising a stepper or DC motor, wherein said stepper or DC motor is configured to advance said removable plate for samples relative to said piezoelectric micropipette.

17 38. (New) The device of claim ~~19~~, further comprising means for triggering discharge of the micropipette in such a way that the micropipette is able to deliver at least one drop of constituent into each cavity of the sample plate.